

METROGON  
LENS

$f$  = FOCAL LENGTH  
 $N$  = NODAL SEPARATION  
 $L$  = SEPARATION OF  
 OBJECT & IMAGE  
 PLANES.

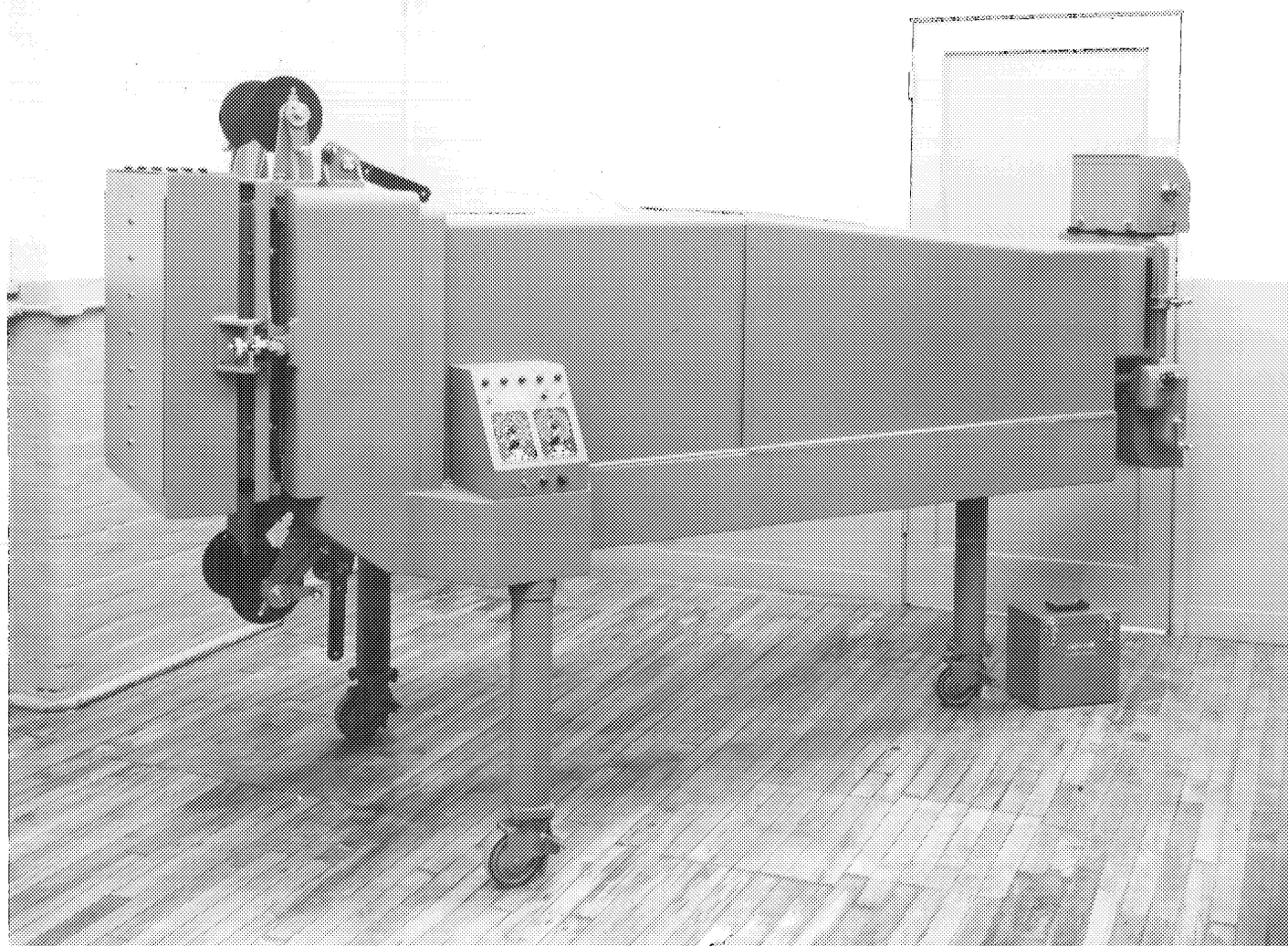
RETROGON  
LENS

$$4f_m - N_m = L = 4f_R + N_R$$

$$L = 1400 \pm \frac{19}{38} \text{ MM.}$$

*not for Omaha unit*

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## 2:1 REDUCTION PRINTER

The purpose of the reduction printer is to transfer uncut film negatives of any focal length to diapositive transparencies at exactly one half of their original focal length and size. The maximum acceptable format on the negative side is 18" x 18". The reduced positive transparencies may be on roll film or on 9½" x 9½" glass plates. The projection lens is distortion free within the measurable limits. The negative and positive stage plates are parallel, normal upon the axis of projection, and calibrated to fixed conjugate distances of the ratio 2:1. The resulting transparencies are, therefore, geometrically similar to the respective negatives, without alteration of their inherent distortion status. Due to the high power of resolution of the projection lens, the full contents of information on the film negative may be transferred to the positive image plane.

The projection axis of the printer is horizontal. All components are rigidly supported by a heavy base casting standing on three tubular legs equipped with swivel rollers.

The negative plane is established by a plano-parallel glass plate on which are engraved several sets of fiducial lines serving for centration of 18" x 18", 9" x 18" and 9" x 9" exposure formats. Spool holding facilities are provided for these formats. Films are held flat in exposure position by a glass pressure plate. Uniform illumination of the 18" x 18" area is furnished by a cold cathode tube grid behind an opal diffusing screen. The light grid is contained in a blower ventilated housing and is operated from a 15,000-volt AC transformer mounted beneath the base casting. The light bar and the pressure plate frame are hinged to the side of the stage casting, making the stage area easily accessible for film centering. Fluorescent lighting from the objective side of the stage is available for centering operation.

The projection lens is a specially designed 9 element optical system of 21" focal length operating at f/12 field aperture. Two of the spherical surfaces are aspherically deformed, a third is coated with a multi-layer interference filter which reduces the transmitted light to a narrow wave band, bracketing the design wavelength of the system. It has a half angular field of 13.5° and renders axial resolution in excess of 100 lines per mm in the image fields. It is equipped with a single disc, solenoid operated, shutter which is controlled by manual switch or electric timer.

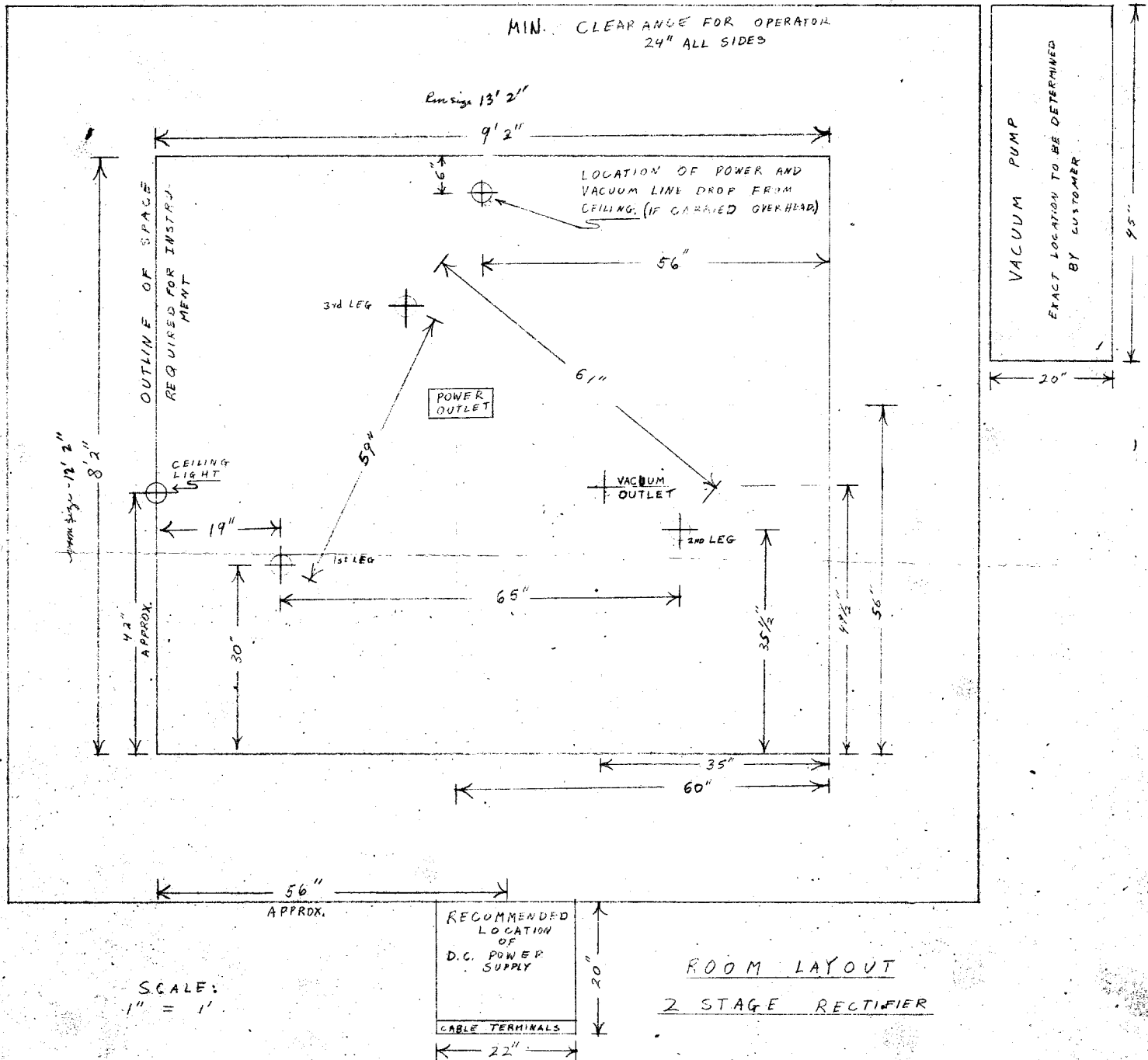
The positive stage has a stage glass plate which defines the image plane, and a pressure plate which is manually advanced by lever action in order to place the photosensitive emulsion in contact with the stage plate. If glass plates instead of roll film are used, the pressure plate is converted to a plate holder into which the individual plates may be inserted when the stage door is opened. Film supply and take-up magazines for darkroom loading are attachable above and below the stage. A dark slide, a film winding mechanism with exposure counter, a series of interlocks and a film shearing blade are provided for convenient and insured manual operation. Exposed glass plates may be stored in a light tight container.

The control panel contains two electric timers, a series of indicator lights, switches and fuse post.

The printer has an overall length of 125" and a height of 70". At the control panel it is 45" wide. It weighs approximately 1300 pounds net and is shipped in assembled condition. The power demand is 115 volts AC, 10 Amps.

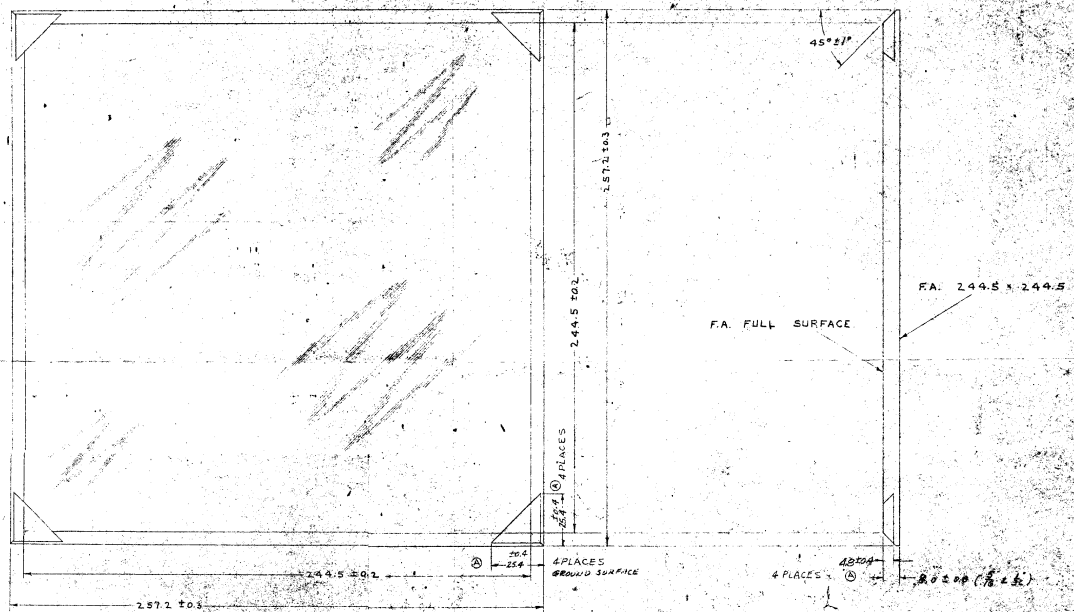
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STAT

ILLEGIB



QUALITY: d  
EDGE VARIATION: ± 0.1  
EDGE & BEVELS: GROUND  
DIAGONALS OF PLATE EQUAL WITHIN ± 0.0  
GLASS: POLISHED PLATE, SILVERING QUALITY, PITTSBURGH PLATE  
80 QUALITY: NO ADDITIONAL SURFACING NECESSARY  
ALL DIMENSIONS IN MILLIMETERS

NOT USED ON 3.6 x 1.5 x 0.75

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